



MFJ Pocket Code Tutor

Model MFJ-411

INSTRUCTION MANUAL

Always Read The Instructions Before Operating New Equipment

MFJ ENTERPRISES, INC.

P.O. BOX 494, MISSISSIPPI STATE, MS 39762, USA

The MFJ-411

The MFJ-411 Code Tutor is a microprocessor controlled device that can help you learn code from no code to sixty words per minute. It contains over 500 words, names and call signs used in amateur radio and a random QSO generator to simulate “on the air” contacts.

Connections

The Code Tutor uses a nine volt battery or 12 Vdc from an external source.

MFJ recommends the use of alkaline (or rechargeable nicad) batteries to reduce the risk of equipment damage from battery leakage. Avoid leaving any batteries in this unit during periods of extended storage. Remove weak batteries immediately!

To install a 9 volt battery first open the unit by removing the 4 screws on the sides of the unit. Slide the clear insulating sleeve up on the battery lead wire and plug in the battery. ***The clear insulating sleeve must be installed on the battery clips when the 9 volt battery is not in place or your unit may be damaged.*** Clip the battery into the metal clips laying the battery flat against the back of the case. Route the wires so that they will not be crimped and reinstall the face plate.

The power jack on the side of the unit accepts a 2.1mm plug with the center conductor positive. MFJ offers an optional 12 Vdc, 350 mA supply, the MFJ-1312B for use with the Code Tutor.

Beside the power jack is a stereo plug for audio out. Use a set of stereo portable radio headphones for listening in noisy areas. The Code Tutor does not provide true stereo audio. If you use a mono plug in the jack only push it in halfway. Pushing a mono plug in all the way will short the audio to ground, making listening impossible.

Code Tutor Basic Operation

The Code Tutor has all the features needed for learning Morse Code individually or as part of a group. After you have decided how you will study code it is simple to set the options on the Code Tutor.

When you sit the Code Tutor in front of you, first notice the buttons on the left and right at the top of the unit. Push the ON/OFF button and it will lock into place.

The Code Tutor will play two Morse characters. --- .- , “ON”, to tell you it is on and then test the display. The Code Tutor will then display the default value for speed, 13 words per minute.

Notice that if you let the Code Tutor sit for more than 5 seconds the display will blank. By blanking the display the Code Tutor drops the current draw in half. Blanking the display doubles the life of your battery therefore saving you money, putting fewer batteries in landfills and saving our nations dwindling resources.

To turn on the display press either of the options buttons. **When you press one of the buttons you will change the setting.** Press the other button to change the setting back. You may also press both buttons and change the options mode to turn on the display. Press both buttons to go back to the options mode that had blanked.

Code Tutor Menu

Notice the vertical row of LEDs with labels to the side. This is the “MODE” menu. One led is always lit unless the Code Tutor is sending code. The lit LED indicates the options mode that can be changed with the “OPTIONS UP” or “OPTIONS DOWN” buttons.

When you turn on the Tutor it will first display the word per minute speed, default is set to 13 words per minute. Press either the “UP” or “DOWN” button to increase or decrease the speed by one. Hold the button down to quickly change settings.

To select another options mode press both buttons simultaneously. The next LED will light and the setting for that mode will be shown on the display.

When you leave an options mode, the setting that last appeared on the display will be the one set for operation. If you left the speed options mode with 20 on the display (or blanked) the code tutor will send at 20 words per minute.

Here are descriptions of the different mode settings:

Speed

The word per minute speed at which the Code Tutor will send. Word per minute speed is based on the standard word “PARIS” which is 50 dot lengths long. At 10 words per minute “PARIS” will be sent 10 times.

For Novice and Technician the code requirement is 5 words per minute. For General and Advanced the code requirement is 13 words per minute. Extra has a 20 words per minute requirement. See the “Group” section for information on the Farnsworth method.

Tone

The sidetone frequency setting at which the code is sent. See the table on page 8 for the frequency of each sidetone setting. The default is set at 19 (715 Hertz), another good value would be setting 23 (1000 Hertz).

The next two groups, “BEGINNER” and “ADVANCED” are not active at the same time. Set the “BEGINNER” option to -- for the advanced options.

Beginner

The beginner options are meant for someone who doesn't know any code and needs to learn the sound of the characters. In this mode you can select one of seven character sets. The Code Tutor has the same sets as suggested by the ARRL for learning code.

The sets are as follows:

C1: EISHTMO

C2: AWJNDB

C3: UVGZKRPX

C4: FCLQY

C5: 12345

C6: 67890

C7: . , ? / + SK =

To allow the beginner a chance to recognize the sound of each character before sending random code, the Code Tutor sends each character set, in the order seen above, three times in succession.

After learning all the characters, a learner will want to use the advanced options. To change to the advanced options while in the “BEGINNER” mode press the “OPTIONS UP” button until the -- appears. Now change the “MODE” LED to the advanced settings. To change back to the beginner options you must set the mode to beginner and press the “OPTIONS DOWN” button until the correct group appears.

Advanced

The advanced options are meant for the person who wants to increase code speed but already knows each character. The settings are as follows:

L: The letters A-Z

N: The numerals 0-9

P: The prosigns . , ; : ‘ “ / ? - _ = \$ () AL AR AS
SN HH KA SK

ALL: All letters, numerals and prosigns

rc: Random code words used in amateur radio. When “rc” is selected the Code Tutor will send random words from its internal database. Words like: rig, antenna, contest, mike, tuner, ground, etc.

cq: When cq is selected the Code Tutor sends entire random QSOs with the words in its database. This is the best way to study for a license test because it is the same format as the test! An example would be:

CQ CQ DE KB5VKY KB5VKY KB5VKY K
KB5VKY DE KB5JNZ NAME ES JIM JIM UR 559 559
= QTH STARKVILLE MS = QSL? AR etc.

Group

The group options set random word length and enable Farnsworth sending. In Farnsworth mode all the characters are sent at 18 words per minute but spaced out to the code speed set with “SPEED”. This technique is useful for making the novice learn the sounds of the code characters instead of memorizing dots and dashes.

n: normal sending (non-Farnsworth)

F: Farnsworth (18 WPM character speed default word speed)

r: random word length (1-8 characters)

5: fixed 5 character words

Note that the character length settings will not work with the “rc” or “cq” options selected. Farnsworth will work with any other setting.

Go

After you have selected all the options that you want for your code session press both buttons until the “GO” LED is lit. The Tutor will start a 5 second countdown from when you release the two buttons.

There are two options in this mode: repeat session or new session. The Code Tutor has the capability of repeating one code session until the power is turned off.

When the “n” is displayed, the default, the Code Tutor will start a *new* session every time the old session is stopped. To *repeat* the code session you must change the “n” to an “r” by pushing the “UP” options button *before* the code starts. Copy for 5 minutes and then press the up or down button to stop the session. The Code Tutor will stop in the “SPEED” mode. Press both buttons until you are in the “GO” mode and recopy the same code to check yourself. When the “r” option is selected the random code session will repeat until you turn the unit off. Reselect “n” to have a new session.

Appendix
The Morse Code Character Set

A	.-	1	.----
B	-...	2	..---
C	-.-.	3	...--
D	-..	4-
E	.	5
F	..-.	6	-....
G	--.	7	--...
H	8	---..
I	..	9	----.
J	.---	0	-----
K	-.	*	.
L	.-..	*	,
M	--	*	?
N	-.	*	/
O	---		;
P	.-.		:
Q	-.-.		'
R	.-.		"
S	...		-
T	-		_
U	..-		=
V	...-		+
W	.-.		\$
X	-.-.		(
Y	-.--)
Z	--..		

* required on code tests

Prosigns:	*AR End of Message	AL Paragraph
	*SK End of Work	HH Error
	*BT Pause, Break	KA Start Signal
	AS Wait	SN Understood

Code Tutor Sidetone Frequency

Setting	Frequency in Hertz
0	305
1	315
2	325
3	335
4	345
5	355
6	370
7	385
8	400
9	415
10	435
11	455
12	475
13	500
14	525
15	555
16	590
17	625
18	665
19	715
20	770
21	835
22	910
23	1000
24	1110
25	1250
26	1430
27	1665
28	2000
29	2500
30	3335

CW Abbreviations

73	best regards	MSG	message
88	love and kisses	NR	number
ABT	about	NW	now
AGN	again	OM	old man
ANT	antenna	OP	operator
BK	break	R	are, received, roger
CPY	copy	RCVR	receiver
CQ	call to any station	RIG	equipment
CUL	see you later	RST	readability, strength, tone report
CU	see you	SIGS	signal
DE	from	STN	station
DX	distance, rare station	TEMP	temperature
ES	and	TKS	thanks
FB	fine business	TNX	thanks
FER	for	UR	you are
FREQ	frequency	U	you
GA	go ahead	WL	well
GA	good afternoon	WT	watt
GE	good evening	WX	weather
GM	good morning	XCVR	transceiver
HR	here	XMTR	transmitter
HW	how	XYL	wife
K	go ahead		

The Meaning of Q Signals

QRA	The name of my station is
QRL	I am busy Do not interfere
QRM	I am being interfered with
QRN	Conditions are bad
QRO	Increase power
QRP	Decrease power
QRQ	Send Faster
QRR	I am ready for automatic operation
QRS	Send more slowly
QRT	Stop sending
QRU	I have nothing for you
QRX	I will call again at...., wait
QRZ?	Who is calling me?
QSB	Your signal is fading
QSD	Your keying is defective
QSK	I can hear you between my signals
QSL	I am acknowledging receipt
QSU	Reply on this freq. Or class
QSX	I am listening to ... on...KHz
QSY	Change freq., change to xmit onKHz
QTH	My location (home) is
QTR	The correct time is
QTS	I will send so my freq. can be measured
QUB	Here is the info you requested
QUM	The distress traffic has ended

Send a “?” after a Q signal to ask for information or an action
 Ex. QRZ: station (call) is... QRZ? :-what is your station(call)?

FULL 12 MONTH WARRANTY

MFJ Enterprises, Inc. warrants to the original owner of this product, if manufactured by MFJ Enterprises, Inc. and purchased from an authorized dealer or directly from MFJ Enterprises, Inc. to be free from defects in material and workmanship for a period of 12 months from the date of purchase provided the following terms of this warranty are satisfied.

1. The purchaser must retain the dated proof-of-purchase (bill of sale, canceled check, credit card or money order receipt, etc.) describing the product to establish the validity of the warranty claim and submit the original or machine reproduction or such proof of purchase to MFJ Enterprises, Inc. at the time of warranty service. MFJ Enterprises, Inc. shall have the discretion to deny warranty without dated proof of purchase. Any evidence of alteration, erasure, or forgery shall be cause to void any and all warranty terms immediately.
2. MFJ Enterprises, Inc. agrees to repair or replace at MFJ's option without charge to the original owner any defective product provided the product is returned postage prepaid to MFJ Enterprises, Inc. with a personal check, cashier's check, or money order for **\$7.00** covering postage and handling.
3. MFJ Enterprises, Inc. will supply replacement parts free of charge for any MFJ product under warranty upon request. A dated proof of purchase and a **\$5.00** personal check, cashier's check, or money order must be provided to cover postage and handling.
4. This warranty is **NOT** void for owners who attempt to repair defective units. Technical consultation is available by calling (601) 323-3869
5. This warranty does not apply to kits sold by or manufactured by MFJ Enterprises, Inc.
6. Wired and tested PC board products are covered by this warranty provided only the wired and tested PC board product is returned. Wired and tested PC boards installed in the owner's cabinet or connected to switches, jacks, or cables, etc. sent to MFJ Enterprises, Inc. will be returned at the owner's expense unrepai red.
7. Under no circumstances is MFJ Enterprises, Inc. liable for consequential damages to person or property by the use of any MFJ products.
8. Out-of-Warranty Service: MFJ Enterprises, Inc. will repair any out-of-warranty product provided the unit is shipped prepaid. All repaired units will be shipped COD to the owner. Repair charges will be added to the COD fee unless other arrangements are made.
9. This warranty is given in lieu of any other warranty expressed or implied.
10. MFJ Enterprises, Inc. reserves the right to make changes or improvements in design or manufacture without incurring any obligation to install such changes upon any of the products previously manufactured.
11. All MFJ products to be serviced in-warranty or out-of-warranty should be addressed to MFJ Enterprises, Inc., 921A Louisville Road, Starkville, Mississippi 39759, USA and must be accompanied by a letter describing the problem in detail along with a copy of your dated proof-of-purchase.
12. This warranty gives you specific rights, and you may also have other rights which vary from state to state.